

ABSTRACT OF THE DISCLOSURE

Nitrogen is rejected from a feed natural gas stream comprising methane and nitrogen so as to form a primary methane product. The mole fraction of nitrogen in the feed natural gas increases over a period of time. The feed natural gas stream is cooled in a main heat exchanger and is rectified in a double
5 rectification column. A primary product methane stream and a secondary nitrogen-enriched product stream are withdrawn from the rectification column. The secondary nitrogen-enriched product stream has a mole fraction of methane at or above a chosen minimum value when the said mole fraction of nitrogen is at a minimum. When the said mole fraction of nitrogen rises to a value at which the
10 mole fraction of methane in the secondary nitrogen-enriched product stream falls below the chosen minimum, a part of the feed gas is introduced through conduit into the secondary nitrogen-enriched product stream so as to restore its mole fraction of methane to the chosen minimum value or a value thereabove.